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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,433	02/11/2002	Christophe Brugidou	1721-41	4353
23117	7590	06/02/2004	EXAMINER	
NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714				BROWN, TIMOTHY M
ART UNIT		PAPER NUMBER		
1648				

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/018,433	BRUGIDOU ET AL.
	Examiner	Art Unit
	Tim Brown	1648

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 03 March 2004.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-14 is/are pending in the application.
 4a) Of the above claim(s) 6-14 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-5 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 03 March 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 20 December 2001.

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION

This Non-Final Office Action is responsive to Applicants' Election received March 3, 2004. Applicants' election to prosecute the invention of Group I is noted with appreciation. Therefore, claims 1-5 are pending and claims 6-10 are withdrawn from consideration.

Election/Restrictions

Applicants' traverse of the Restriction Requirement (mailed December 12, 2003) is not persuasive. The Restriction Requirement is therefore made final.

Applicant argues the Restriction Requirement fails to comply with PCT rules because unity of invention exists between Groups I-III. Applicants note that claim 6 of Group II includes all the features of Group I through dependency. Applicants reason that this satisfies unity because Group II necessarily includes all the limitations, and therefore the special technical feature, of Group I. Applicants apply the same reasoning to Group III which ultimately depends from Group I. The Examiner respectfully disagrees.

PCT Rule 13.4 states that "it shall be permitted to include in the same international application a reasonable number of dependent claims, claiming specific forms of the same invention claimed in an independent claim . . ." This requirement has not been met. The invention of Group I is a method for isolating the recognition and transport proteins that are involved in transport of a pathogenic plant virus. The invention of Group II is not directed to this method. Rather, Group II is directed to transport and recognition proteins such as those involved in the transport of pathogenic plant viruses. Group I is a method and Group II is a protein. Therefore, simple dependency cannot transform these independent groups into "the same invention" for purposes of unity.

Applicants make the same argument with respect to Group III. That is, they suggest Group III satisfies unity of invention because it depends from Group II, which itself depends from Group I. However, Group III is directed to a cDNA while Group I is directed to isolating transport and recognition proteins. A method for isolating proteins is clearly not the same invention as a molecule of cDNA. Thus, Group III also fails to satisfy the unity requirements of PCT Rule 13.4.

It is noted that Applicants' refer to Example 17 of Annex B of the PCT Administrative instructions. The Examiner observes that Example 17 establishes unity between (1) a protein, and (2) a DNA sequence encoding the protein. Applicants reason this establishes unity between Group II (recognition and transport proteins) and Group III (a cDNA encoding the proteins) and that such unity extends to Group I through dependency. However, unlike the example, Applicants' claim 1 is directed to a method and not a protein. Moreover, PCT rules provide that unity may be determined to the first claim in the application. Accordingly, Example 17 does not apply to Applicants' claims.

This reasoning does not establish unity because unity may be determined according to claim 1. In Applicants' case, claim 1 is a *method* for isolating proteins. Thus, Example 17's finding of unity between a protein and its corresponding cDNA does not apply.

Because unity of invention is lacking between Groups I-III, the Restriction Requirement is made final.

Claim Objections

Claim 3 is objected to for failing to define the first occurrence of "RYMV." Amending the claim to recite "Rice Yellow Mottle Virus (RYMV)" would overcome this objection.

Claim Rejections - 35 USC § 112, First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention without undue experimentation.

A number of factors must be considered in determining whether the required experimentation is “undue.” These factors include: the breadth of the claims; the state of the prior art; the level of predictability in the art; and the amount of direction provided by the inventor. *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404.

Applicants’ claims are drawn to a method for isolating the recognition and transport proteins that are involved in transporting a pathogenic virus through plant tissue plasmodesmata. The method isolates these proteins from any plant and for any virus that circulates through plasmodesmata. The method comprises the steps of subjecting a plant sample to a Western blot using anti-capsid antibody, and collecting the non-immunodetected bands.

According to the state of the art, collecting the inventive non-detected bands requires a secondary marker. Stains such as Coomassie Blue highlight the proteins so that they can be located and extracted. Applicants’ specification provides no direction as to how non-

immunodetected bands can be collected when they have not been identified with a stain. Thus, the skilled artisan would have to perform undue experimentation to practice Applicants' method.

Undue experimentation is also required to separate the recognition and transport proteins from the other non-immunodetected bands. This results because Applicants' method collects all non-immunodetected bands from a plant sample except those proteins captured by the anti-capsid antibody. Therefore, the collected bands would consist of every plant protein from the sample, not just the desired recognition and transport proteins. One skilled in the art could not easily predict which bands comprise the recognition and transport proteins since a plant tissue homogenate would produce a wide range of protein bands. Moreover, Applicants' specification does not provide direction as to which bands comprise the plants' recognition and transport proteins. In fact, the specification states that proteins of a specific molecular weight are only "of potential interest." Thus, the skilled artisan would have to perform undue experimentation in order to practice Applicants' invention.

Because undue experimentation is required to practice Applicants' invention, Applicants' invention fails to satisfy the enablement requirement of 35 U.S.C. 112, first paragraph.

Claims 1-5 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the Inventors, at the time the application was filed, had possession of the claimed invention. Applicants' specification does not show possession of a method wherein non-immunodetected bands can be collected from a Western blot without identifying such bands with a non-specific marker. Nor does Applicants' specification show possession of a method that

isolates recognition and transport proteins from a plant sample when the method only separates capsid proteins from the remaining proteins of the sample. Accordingly, Applicants' invention fails the written description requirement of 35 U.S.C. 112, first paragraph.

Claim Rejections - 35 USC § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. Claim 1 omits two essential steps. First, claim 1 omits the step of providing a non-specific marker that identifies the proteins that are not recognized by the anti-capsid antibody. It is clear that this step is required in that claim 1 recites collecting non-immunodetected bands. Second, claim 1 omits the step of purifying the sample such that only complexes of virus and transport/recognition proteins are separated by Western blot. This is clearly required since isolating transport/recognition proteins using only an anticapsid antibody dictates that only transport, recognition and capsid proteins be present. For at least these two reasons, claims 1-5 are rejected under 35 U.S.C. 112, second paragraph for omitting essential steps.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Opalka et al. "Movement of rice yellow mottle virus between xylem cells through pit membranes" Proc. Natl. Acad. Sci. March 1998 Vol. 95 pp. 3323-3328

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Citovsky, V. "Probing Plasmodesmal Transport with Plant Viruses" Plant Physiol. 1993

Vol. 102, pp. 1071-1076

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tim Brown whose telephone number is (571) 272-0773. The examiner can normally be reached on Monday - Friday, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel can be reached on (571) 272-0902. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tim Brown
Examiner
Art Unit 1648

tmb


ULRIKE WINKLER, PH.D.
PATENT EXAMINER 6/1/04